PR4

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/470,875	12/22/1999	MANPREET S. KHAIRA	2207/6843	6722

7590 09/04/2003

KENYON & KENYON
ONE BROADWAY
NEW YORK, NY 10004

EXAMINER
CRAIG, DWIN M

ART UNIT	PAPER NUMBER
2123	5

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/470,875	Applicant(s) KHAIRA ET AL.	
	Examiner Dwin M Craig	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 7-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-5 and 7-55 have been presented for reconsideration in light of Applicant's amended Claims. Claim 6 has been removed from consideration as per Applicant's request.

Response to Arguments

2. Applicant's arguments filed on 6-12-03 have been fully considered. Examiners response is as follows:

2.1 Regarding Applicant's response to the Examiner's objection to the Claim numbering:

The Applicant has argued:

> The Office Action objects to the Applicants' numbering because there is no claim 6. Applicants hereby state for the record that claim 6 was not included in the original application, and therefore hereby disclaim any right in claim 6.

The Examiner agrees. Applicant has overcome the earlier claim numbering objection.

2.2 Regarding Applicant's response to the 35 U.S.C. 103 rejections of Claims 1, 2, 4, 5, 8-10, 21, 22, 24-27, 29, 30, 31, 32, 34-43, 45, 46 and 48-55 specifically in regards to the *Eisenhofer ('494) reference:*

The Applicant has argued that:

> Therefore, the Eisenhofer reference discloses taking elements of data of a first *type* and converting those elements to a second data *type* using a translation or "look-up" table.
>
> Applicants respectfully submit that none of the cited sections of Eisenhofer teach,
>
> suggest or reflect "...operating each interface to convert the messages between a data *format*
>
> associated with the fixed configuration backplane and a data *format*

> associated with the simulator associated with the interface". For example, lines 15-19 of the specification disclose "[e]ach SDI ("software based simulator-dependent interfaces") converts the exchanged messages between the *data format* supported by its corresponding simulator and the *data format* supported by the simulation backplane. Thus, *simulation backplane* 102 may implement a common data *format* when communicating with any simulator, driver or checker."
> Worthington (`270), Eisenhofer (`836), Ly (`946), Dearth (`267) and Dearth (`247) fail to make up for this deficiency. Therefore, since the implementation of a common data format by the simulation backplane is not taught or suggested by Eisenhofer (`494) or the other aforementioned references, claim 1 is in condition for allowance and the 35 U.S.C. 103(a) rejection should be withdrawn.
>
> Applicants respectfully submit that independent claims 21, 26, 29, 34, 40, 45, 51, 52, 53, 54, and 55 also contain the implementation of a common data format by the simulation backplane, and are therefore are allowable for similar reasons. Furthermore, Applicants submit that dependent claims 2-20, 22-25, 27-28, 30-33, 35-39, 41-44, and 46-50 are allowable as depending from allowable base claims.

The Examiner asserts that, the *Eisenhofer et al.* U.S. Patent 6,108,494 does disclose data format conversions, specifically in Col. 6 Lines 15-20 the *Eisenhofer et al ('494)* reference discloses, *"When a boundary event occurs between simulators the simulation* ***backplane*** *synchronizes the simulators so that they are at the same point in time and, before transferring any event information, it* ***converts*** *the event information to a representation usable by the target simulator."*

The Examiner asserts that this passage from the *Eisenhofer et al.* U.S. Patent 6,108,494 reference directly reads on Applicant's claimed limitation of converting data formats and operating each interface to the back plane so that data conversion can take place. The Examiner notes that these arguments stem from the ***SDI*** **or simulator-dependent interfaces** which is not positively recited in the current claim language. Further, Applicant's claim language is not constructed as *"means for"*. Therefore the claimed conversion between different data formats, as disclosed in *Eisenhofer ('494),*is equivalent to "*...operating each interface to convert the messages between a data format associated with the fixed configuration backplane and a*

data format associated with the simulator associate with the interface " and would be within the broadest reasonable interpretation of the claims. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., *SDI or Simulator-dependent interfaces*) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Specifically, applicant has only argued *Eisenhofer ('494), id.* See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The Examiner has found Applicant's arguments to be unpersuasive and upholds the earlier 35 U.S.C. 103 rejections of claims 1, 2, 4, 5, 8-10, 21, 22, 24-27, 29, 30, 31, 32, 34-43, 45, 46 and 48-55. The Examiner has followed the factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) and provided ample motivation for the modifications for one of ordinary skill level in the art at the time of the invention was made.

Claim Rejections - 35 USC § 103

The Examiner has followed the factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4, 5, 8-10, 13-18, 21, 22, 24-27, 29, 30, 31, 32, 34-43, 45, 46, 48-51, and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference.

3.1 As regards independent **Claims 1, 21, 26, 29, 34 and 51** the *Eisenhofer-1* reference discloses a method for distributed simulation **(Col. 7 Lines 15-25),** at least two simulators **(Figure 2),** a back plane **(Figure 2 Item 210),** an interface for the simulators **(Col. 5 Lines 52-67, Col. 6 Lines 1-20),** fixed configuration back plane **(Col. 5 Lines 5-7),** exchanging messages **(Col. 8 Lines 42-47)** and data format conversions **(Col. 5 Lines 52-67, Col. 6 Lines 1-20, Col. 12 Lines 34-67, Col. 13 Lines 1-5).**

The *Eisenhofer-1* reference does not expressly disclose simulators that represent components of a system based on a processor and a chipset.

The *Worthington et al.* reference discloses a method for flexible simulation modeling that represent at least one of a component and a system based on processors and chipsets **(Figures 1, 3, 3A, 4, Col. 4 Lines 47-61).**

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because by providing entire multi-chip system models using individual system component models, an entire set of integrated circuits may be tested and simulated, not just individually, but in a manner that simulates how they will interact with each other such that problems in how the different chips interact can be detected before costly fabrication occurs ***(Worthington et al. Col. 1 Lines 45-51).***

3.2 As regards the limitation of an apparatus in independent **Claims 40 and 45** the *Eisenhofer-1* reference discloses an apparatus **(Figure 3, Col. 6 Lines 46-67, Col. 7 Lines 1-25).**

3.3 As regards independent **Claims 53-55** the *Eisenhofer-1* reference discloses an articled with a storage medium wherein there is stored instructions for a processor **(Figure 3, Col. 6 Lines 46-67, Col. 7 Lines 1-25).**

3.4 As regards the limitation of validating a component/ element of a design in independent **Claims 29, 34, 40 and 45** the *Eisenhofer-1* reference does not expressly disclose validation.

The *Worthington et al.* reference discloses validation **(Col. 8 Lines 30-40).**

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because by providing entire multi-chip system models using individual system

component models, an entire set of integrated circuits may be tested and simulated, not just individually, but in a manner that simulates how they will interact with each other such that problems in how the different chips interact can be detected before costly fabrication occurs ***(Worthington et al. Col. 1 Lines 45-51).***

3.5 As regards **Claims 2, 22, 31, 38, 42 and 49** the *Eisenhofer-1* reference does not expressly disclose a driver.

The *Worthington et al.* reference discloses a driver **(Figure 1 Item 14b).**

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because by providing entire multi-chip system models using individual system component models, an entire set of integrated circuits may be tested and simulated, not just individually, but in a manner that simulates how they will interact with each other such that problems in how the different chips interact can be detected before costly fabrication occurs ***(Worthington et al. Col. 1 Lines 45-51).***

3.6 As regards **Claims 4, 24, 32, 39, 43, 50,** the *Eisenhofer-1* reference does not expressly disclose generating specific circuit models, however the reference does discuss the use of models in circuit simulation.

The *Worthington et al.* reference discloses models of components used in circuit simulation **(Figures 1-10, Col. 2 Lines 30-67, Col. 3 Lines 1-8).**

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because by providing entire multi-chip system models using individual system component

models, an entire set of integrated circuits may be tested and simulated, not just individually, but in a manner that simulates how they will interact with each other such that problems in how the different chips interact can be detected before costly fabrication occurs ***(Worthington et al. Col. 1 Lines 45-51).***

3.7 As regards **Claims 5, 25, 27, 30, 35, 41 and 46** the *Eisenhofer-1* reference discloses an integrated circuit **(Col. 1 Lines 30-48).**

3.8 As regards **Claims 8 and 9** the *Eisenhofer-1* reference discloses a global signal used for synchronization and simulators being relaxed based on the current state of that simulator **(Col. 6 Lines 21-45).**

3.9 As regards **Claim 10** the *Eisenhofer-1* reference discloses synchronizing different types of simulators **(Col. 11 Lines 60-67, Col. 12 Lines 1-25).**

3.10 As regards **Claims 13 and 15** the *Eisenhofer-1* reference discloses exchanging messages to enable simulators using different encoding schemes **(Col. 5 Lines 52-67, Col. 6 Lines 1-20, Col. 12 Lines 34-67, Col. 13 Lines 1-5).**

3.11 As regards **Claims 14, 16 and 17** the *Eisenhofer-1* reference discloses resolving conflicts based on boundary conditions between different simulators **(Figure 7, Col. 5 Lines 19-25, Col. 6 Lines 21-45, Col. 12 Lines 7-40).**

3.12 As regards **Claim 18** the *Eisenhofer-1* reference discloses high-level languages **(Col. 7 Lines 27-51).**

3.13 As regards **Claims 37 and 48** the *Eisenhofer-1* reference does not expressly discloses a message from a second device.

The *Worthington et al.* reference discloses getting a test message from a second device **(Figures 3, 4, 8, Col. 2 Lines 30-44).**

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have modified the *Eisenhofer-1* reference with the *Worthington et al.* reference because by providing entire multi-chip system models using individual system component models, an entire set of integrated circuits may be tested and simulated, not just individually, but in a manner that simulates how they will interact with each other such that problems in how the different chips interact can be detected before costly fabrication occurs ***(Worthington et al. Col. 1 Lines 45-51).***

4. **Claims 3, 7, 20, 23, 28, 33, 36, 44, 47,** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference and in further view of **Ly et al. U.S. Patent 6,175,946.**

4.1 As regards independent **Claims 1, 21, 26, 29, and 34** see the rejection in paragraph **3.1.**

4.2 As regards independent **Claims 40 and 45** see the rejection in paragraph **3.2.**

4.3 As regards **Claims 3, 20, 23, 28, 33, 36, 44, 47** the *Eisenhofer–1* reference does not expressly disclose a checker.

The *Ly et al.* reference discloses a checker **(Figure 1A, 5, 6, Col. 2 Lines 36-42).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to have modified the *Eisenhofer–1* reference with the *Ly et al.* reference because

diagnosing errors flagged by automatically generated checkers is much easier than diagnosing errors flagged by end-to-end tests, ***(Ly et al. Col. 3 Lines 53-56).***

4.4 As regards **Claim 7** the *Eisenhofer–1* reference does not expressly disclose a tree.

The *Ly et al.* reference discloses a process control tree **(Figure 3A).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to have modified the *Eisenhofer–1* reference with the *Ly et al.* reference because diagnosing errors flagged by automatically generated checkers is much easier than diagnosing errors flagged by end-to-end tests, ***(Ly et al. Col. 3 Lines 53-56).***

5. **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference and in further view of **Dearth et al. U.S. Patent 5,881,267.**

5.1 As regards independent **Claim 1** see the rejection in paragraph **3.1.**

5.2 As regards **Claims 11 and 12** the *Eisenhofer–1* reference does not expressly disclose executing a remote procedure call.

The *Dearth et al.* reference discloses executing a remote procedure call **(Col. 10 Lines 45-56).**

It would have been obvious, at the time of the invention was made, to one of ordinary skill in the art to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference

because the *Dearth et al.* reference discloses a method of improving the accuracy of a distributed simulation ***(Dearth et al. Col. 3 Lines 30-35).***

6. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S. Patent 6,339,836** hereafter referred to as the *Eisenhofer-2* reference and in further view of **Dearth et al. U.S. Patent 5,732,247.**

6.1 As regards independent **Claim 1** see the rejection in paragraph **3.1** above.

6.2 As regards **Claim 19** the *Eisenhofer–1* reference does not expressly disclose handwritten test for all simulators.

6.3 The *Dearth et al.* reference discloses test written in a high-level language **(Figure 1).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention was made to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference because the *Dearth et al.* reference discloses an improved method to write test routines for hardware simulation ***(Dearth et al. Col. 2 Lines 14-20).***

7. **Claims 11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenhofer et al. U.S. Patent 6,108,494** hereafter referred to as the *Eisenhofer–1* reference in view of **Worthington et al. U.S. Patent 5,881,270** and in further view of **Eisenhofer et al. U.S.**

Patent 6,339,836 hereafter referred to as the *Eisenhofer-2* reference and in further view of **Dearth et al. U.S. Patent 5,732,247.**

7.1 As regards independent **Claim 1** see the rejection in paragraph **3.1.**

7.2 As regards **Claims 11 and 12** the *Eisenhofer–1* reference does not expressly disclose executing a remote procedure call.

The *Dearth et al.* reference discloses executing a remote procedure call that is deadlock safe **(Figures 4, 4A, 4B, 4C, 4D).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention was made to have modified the *Eisenhofer–1* reference with the *Dearth et al.* reference because the *Dearth et al.* reference discloses an improved method to write test routines for hardware simulation ***(Dearth et al. Col. 2 Lines 14-20).***

Conclusion

8. Claims 1-5 and 7-55 have been presented for reconsideration. The Claims have been reconsidered and rejected.

8.1 THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8.2 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M Craig whose telephone number is 703 305-7150. The examiner can normally be reached on 9:00 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

DMC
September 2, 2003

Patent Examiner
W. Thomson
AU 2123